DAY	BATTLE CASUALTIES OFF/EM	NON-BATTLE	REPLACEMENTS	EFFECTIVE STRENGTH	REQUISTIONS
12 NOV	11/160	6/90	29/699(48)	745/12536	1/0 medical 0/2 engineer 150 infantry 0/5 engineer 0/9 medical
13 NOV	6/210	3/111	18/72(52)	754/12271	300 infantry 2/8 artillery 0/8 medical 0/4 engineer
14 NOV	3/98	8/144	10/371(22)	754/12368	3/225 infantry 1/15 engineer 0/2 medical
15 NOV	3/24	6/64	11/344(63)	757/12690	100 infantry 1/1 artillery 1/63 medical 0/15 engineer 0/50 tank destroyers 0/6 AAA
16 NOV	0/13	1/25	5/37(1/14)	761/12679	4/60 armor
17 NOV	4/27	1/59	11/204(3/45)	768/12840	0
18 NOV	0/18	1/55	0(0/14)	770/12784	0

From 2 through 26 November, the 28th Division reported 248 officers and 5,452 men lost as battle casualties, although most of these losses were suffered between 2 and 14 November. To 18 November, the division received 4,878 replacements, overwhelmingly infantry specialities (4,458 of the total). The division was able to replace its heavy personnel losses, but the influx of replacements was so great that the individual regiments of the division were no longer combat effective.

The infusion of 68 officers and 2,177 enlisted replacements during the heaviest fighting between 2 and 10 November could not reconstitute the fighting strength of the division. The unit suffered too many casualties in too brief a time, and the division commander did not know the extent of losses within his command. The reasons were the inevitable lag in casualty reporting from line units; the falsification of casualty reports apparently to impress higher headquarters; surge casualties overloading the division's administrative reporting system which could not keep an accurate account of losses; and the division commander's seeming inability to recognize the toll the fighting exacted from his men.

When replacements arrived, the division chief of staff instructed the division G-1 to distribute them to the regiments. The regimental S-1 in turn apportioned the replacements received at regiment to battalion where battalion officers assigned them to specific companies and platoons. At

DAY	BATTLE CASUALTIES OFF/EM	NON-BATTLE	REPLACEMENTS	EFFECTIVE STRENGTH	REQUISTIONS
2 NOV	12/288	1/59	0(/7)*	821/12760	10/300 infantry 0/10 artillery 0/4 engineer 5 medical
3 NOV	10/238	1/53	14/358(0)	814/12828	0/300 infantry 0/3 artillery
4 NOV	16/253	2/61	0(0/10)	798/12523	1/3 engineer 0/300 infantry 1/4 artillery 0/11 armor 25 medical
5 NOV	13/185	0/75	0(0/11)	786/12280	1/0 quartermaster 0/11 armor 25/300 infantry 1/13 artillery 1/8 engineer 25 medical
6 NOV	18/352	5/142	5/308(3/25)	771/12108	25/350 infantry 0/3 cavalry 3/25 medical
	A special requisition was submitted for 2 0-6s and 5 0-5s, infantry.				
7 NOV	12/333	3/98	1/296(0/17)	758/11965	15/350 infantry 1/13 artillery
8 NOV	10/310	1/81	38/691(0/48)	787/12314	10/450 infantry 2/6 artillery 0/1 engineer
	After a headcount ordered by division, it was estimated that 34 officers and 673 enlisted men were missing. This was to be reported to Army in the following day's report.				
DAY	BATTLE CASUALTIES OFF/EM	NON-BATTLE	REPLACEMENTS	EFFECTIVE STRENGTH	REQUISTIONS
9 NOV	20/86	1/105	1/87(28)	770/12241 0/10 artillery 0/16 medical	22/373 infantry
10 NOV	46/829	9/91	9/437(35)	724/11805 2/3 artillery 0/2 medical	60/400 infantry
11 NOV	9/112	5/165	11/431(59)	730/12080 1/4 artillery	0/250 infantry

*Returned to unit from medical system in addition to replacements.

the regimental level, the reconstitution of personnel involved the following process.*

On 3 November, General Cota committed his reserve battalion of the 110th Infantry, thus expending the 28th Division's only reserve very early in the operation. That same day division received 14 officers and 358 enlisted replacements, but they included 14 officers and 147 men who had been attached to the division for training in the regimental rear echelon. As the attack began, V Corps authorized their use as replacements. According to the G-1 Journal, 150 infantrymen each were sent to the 109th and 110th Infantry regiments respectively.

No more replacements arrived until 6 November when 315 (5 officers/308 men) reported. G-1 recorded sending 315 replacements to units, probably the 109th and 110th Infantry regiments. Replacement figures and distribution for 7 through 9 November reveal that for the first time division headquarters grasped the severe losses suffered by the 112th Infantry.

On 7 November, G-1 planned to send 200 replacements to the 109th Infantry and 90 to the 3d Battalion, 110th Infantry, then holding the Kall Crossing.** The Chief of Staff then instructed that all the replacements report to the 2d Battalion, 112th Infantry the following day. On 8 November, an additional 38 officer and 691 enlisted replacements arrived. Division headquarters pooled and distributed these replacements and those received the previous day, 247 to the 109th; 225 to the 110th; and 475 to the 112th. The same day General Cota had ordered the 112th Infantry to withdraw across the Kall and begin reconstitution. At that time, to determine actual personnel casualties, division ordered the units to make head counts of their members.

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*These figures are derived from the 28th Division G-1 Journal and File, but they do not match exactly the daily replacement figures recorded in the 28th Division's unit history. I have placed the unit history figures in parenthesis following the G-1's figures on disposition of replacements.

**This included 18 men returned to duty.

As of 8 November

1st Battalion,* 112th Infantry (Fought at Kommerscheidt 3-8 November)

HQ & HQ Co	3/63
Company A	2/67
" B	0/60
" C	2/112
" D	2/50
TOTAL	9/352 (By 9 November stragglers made the total 9/357)

3d Battalion, 112th Infantry (Driven from Schmidt, 4 November; fought at Kommerscheidt 4-8 November)

HQ & HQ Co	4/49
I Company	1/73
K "	1/42
L "	2/42
M "	3/68
TOTAL	9/274 (By 9 November stragglers made the total 11/274)

These units did not, however, receive replacements because the division commander wanted the 2d Battalion, 112th Infantry brought up to authorized strength so that it could spearhead an attack on 10 November. But the commanding officer, 112th Infantry, called the division G-1 on 8 November and refused to accept 250 of these replacements because they lacked proper infantry training. Furthermore, when the 2d Battalion received its alerting order to lead the attack north against Huertgen on the morning of 10 November, its commander reported to the division G-3 that the battalion, "while up to strength, could not be considered more than 20 per cent effective for combat, 515 replacements having been placed in the battalion the day previous."[44] Division then placed the battalion in reserve to hold Vossenack and ordered the 1st Battalion, 109th Infantry to make the attack instead.

The division commander found it difficult even to know the exact status of his line units. On 9 November at 1430 the 3d Battalion, 110th Infantry, for example, reported its personnel strength, but the division G-1 believed the reported figure was too high and ordered a recount. Two and one-half hours, the battalion returned an amended report.

*A rifle battalion consisted of 35 officers and 836 men at strength. A rifle company had 6 officers and 187 men at strength.

3d Battalion, 110th Infantry

	Original	Amended	With Replacements
HQ & HQ Co	8/118	8/118	8/118
I Company	3/145	2/103	4/148 (2/45)
K "	4/40	1/50	4/170 (3/120
L "	2/97	1/109	5/174 (4/65)
M "	5/120	5/110	6/117 (1/7)

Thus the 3d Battalion could provide accurate figures only for its Headquarters Company personnel, but not its lettered companies. In addition, the unit received 237 replacements to go with the 372 soldiers left in the line companies, or slightly over 50 per cent replacements in the line units. Even these manpower drafts alone could not reconstitute the unit as a fighting force. When the 110th Infantry resumed its attacks, the 3d Battalion remained as regimental reserve. The 1st and 2d Battalions carried the bulk of the fighting, but by 14 November they too were exhausted.

On the night of 12 November, the regimental executive officer visited the 1st Battalion and determined that the morale, physical condition, and mental state of the men was low, with the companies reduced to sub-platoon strength. The battalion was badly disorganized, so the next morning the regiment attempted to reconstitute the battalion. Casualties had been so severe that it was impossible to reform companies or even platoons. Instead regiment organized various defense groups commanded by an officer or NCO. Despite the organization of fighting teams its first tactical movement caused the reorganized battalion to disintegrate. Its companies were so depleted and its attacks such "feeble, piecemeal efforts" that all failed, yet resulted in another 616 casualties. The assistant division commander visited the 110th's lines on 13 November and personally observed the "depressing situation." He promptly cancelled all offensive action by the regiment. Altogether the regiment suffered 1,549 battle casualties and another 544 non-battle losses.[45]

That experience seems to invalidate the official conclusions about the efficiency of the replacement system at Schmidt.

"The present policy in this theater of assigning replacements to units in combat is found to be sound and, until such times as casualties in infantry battalions go over 20 per cent in a very short period of time, it is believed that the units can continue in combat with but a very little, if any, drop in efficiency. Even with casualties going over 50 per cent in some battalions, the policy of immediate replacement of casualties prevents the necessity of the complete reorganization of the unit."[46]

Despite an immediate replacement of losses at Schmidt, the 112th Infantry was rendered combat ineffective from 8 November; the 110th's 3d Battalion from 9 November. Other battalions of the division had to carry

Appendix A

EXAMPLE OF DISTRIBUTION OF CASUALTIES IN AN INFANTRY DIVISION
(28th Division, Schmidt Campaign, 1-14 November 1944)

On 14 November the 28th Division was reported destroyed as a fighting machine.

TABLE A1

DISTRIBUTION OF CASUALTIES IN AN INFANTRY DIVISION

1. Effective Strength at Start of Engagement, 012400 November

Units	EM	O	Total
Division	13,107	825	13,932
Attachments	2,123	111	2,234
Total	15,230	936	16,166

2. Casualties (Battle and Non-Battle), 2 to 13 November inclusive

Organic Units	EM	O	Total	% of Total Casualties in Div and Attchmts	% of Div and Attchmts Strength as of 012400 November
Inf Regt (3)	4321	205	4526	93.19	27.82
Div Arty (4 Bn)	67	7	74	1.52	.45
Engr C Bn	43	1	44	.91	.27
Med Bn	6	1	7		
Sig Co	1		1		
Ord Co	1		1		
Rcn Troop	10		10	.49	.15
QM Co	2		2		
MP Plat	2		2		
Band	1		1		
Subtotal	4454	214	4668		
Attachments					
Tank-Destroyer Bn	76	4	80	1.65	.49
AA Bn	5	2	7	.14	.04
Tank Bn	98	4	102	2.10	.63
Subtotal	179	10	189		
Total	4633	224	4857	100.00	29.35

TABLE A1 (continued)

3. Replacements and Returnees by Day of Battle

Date	Organic Units[a]		Attachments[b]	
	EM	O	EM	O
Nov 2	2			
3	372			
4	10		1	
5	11		1	
6	333	8	13	
7	313	1	17	2
8	719	38		
9	115	1		
10	472	9	10	2
11	490	11	5	
12	747	29	2	
13	124	18	7	
Total	3728	115	56	4

[a] 82.33 percent of Division casualties replaced.
[b] 31.75 percent of Attachment casualties replaced.

the attacks which resulted in more casualties for no appreciable gains and ultimately wrecked the division.

A vague area concerning replacements is how untested men replace key leaders. It is deceptively simple to identify key leaders by rank, but should one regard the loss of a new 2d Lieutenant as significantly as the loss of a veteran rifleman? Clark's study concluded that proportionately higher losses among officers than enlisted troops "are not characteristic" of the breakup of infantry battalions."[47]

At Kommerscheidt and at Vossenach company and battalion officers stemmed panic stricken troops in rout on two occasions and forced them back into the firing line. During the same engagement, however, the division's G-1 requistioned two O-6s and five O-5s, Infantry, as replacement officers, i.e., two regimental and five battalion commanders. The commander of the 2d Battalion, 112th Infantry was evacuated for combat exhaustion; that of the 3d Battalion, 112th for minor wounds and combat exhaustion. The three other battalion commanders were wounded in action. The 3d Battalion, 110th Infantry lost its battalion commander, S-2, S-3, and Executive officer. Losses among company and platoon officers were equally severe in all units.

Moreover, during the German counterattack on 7 November that finally drove the 1st and 3d Battalion, 112th Infantry from Kommerscheidt, the regimental commander left his beleagured troops because of a misunderstanding. The colonel believed rumors that his relief was imminent. A message from division headquarters seemed to confirm his suspicions so he left Kommerscheidt to report to division. General Cota had sent no such message, and when the colonel, now wounded, showed up at division headquarters, Cota thought that he had deserted his men under fire.* The strain was so great that Cota fainted.[48] It should be recalled, however, that General Cota was a highly regarded commander, one of the better division commanders in Europe, and well thought of by his troops. The physical and mental strain of six months of combat (Cota had landed at Normandy on 6 June) appear to have taken their toll on his health and decision-making ability. Yet in December the 28th Division under Cota would perform well in the Battle of the Bulge.

Later that day Cota requested V Corps permission to withdraw the 28th Division from combat. V Corps relayed the tacit approval of First Army, but warned that the army commander was "extremely disappointed" with the 28th Division's showing. On 8 November at a conference at division headquarters. General Hodges, First Army commander, drew Cota aside and remarked that the 28th Division headquarters appeared to have no precise knowledge of the location of its units and was doing nothing to obtain the information.[49] This was probably a valid criticism, but even the units themselves had no idea of their location in the thick woods.

*In fact a message had been sent to the colonel by mistake.

Not only did division lack a knowledge of the precise location of its units and their personnel losses, it also seemed to have little understanding of the nature of the fighting. The influence of terrain on the troops has been discussed. Beyond that the men were sick even before entering combat. The enormous fatigue produced by infantry combat further dulled their senses. At Schmidt on 3 November the men were too tired to dig foxholes. They were constantly exposed to the elements, the cold rain and bone chilling mists. Men without blankets or overcoats huddled in rain filled foxholes trying to keep out the cold. They had no overshoes, yet had to stay in the water logged positions. German artillery and small arms fire was so intense that men of the 112th Infantry could not leave their foxholes. They were forced to dispose of their excrement in K-ration boxes, pieces of paper, or handkerchiefs.[50] Such conditions naturally affected morale and unit cohesion. By 7 November the troops at Kommerschiedt were so tired that they could not even hear artillery shells landing close to them. They had reached the stage of fatigue that made their actions mechanical; the fatigue that produces, according to S.L.A. Marshall, an automatism of the mind which destroys physical response. Their courage was killed and their intellects fell asleep.[51] For those reasons, as much as for personnel losses, the 112th Infantry could not be reconstituted as a fighting unit during the Schmidt operation. Morale had vanished, replaced by apathy. The division staff deceived itself with the journal entry for 30 November that the combat efficiency, although reduced in strength, particularly of unit officers and NCOs, is rated excellent.[52] The division had been destroyed and was even then undergoing regeneration.

Criteria for Withdrawal of a Unit From Combat As Applied to the 28th Infantry Division at Schmidt

Criteria Used for Unit Reconstitution

CSI derived of the reconstitution criteria applied to the 28th Division from previous analytical studies by ORO, BDM, CAORA[53] and CSI's historical evaluation of combat data and evidence. These factors must be considered as interrelated situational variables when employed as guidelines for commanders. As Sun Tzu wrote, "And as water has no constant form, there are in war no constant conditions." Perhaps the single variable most apparent to the commander is the condition of his troops.

1. <u>The condition of troops at the beginning of the engagement</u>: This criterion is probably the most easily recognizable. Its subsections would include a) months the division has been in combat; b) the length of rest period or service in a quiet sector just prior to the engagement; c) nature of the most recent combat experience; d) actual unit strength; e) the number of replacements in the unit. All of this factual data about the 28th Division was available. Subset 1. b) is deceptive because even in a quiet sector the unit had lost nearly 1,000 men in one month or over 30 a day to all causes.

2. Terrain: The commander should appraise the terrain not only for its tactical advantages and disadvantages and availability of line of communication for resupply, but also should consider the pyschological effects the terrain will exert on his troops. Clearly the Huertgen Forest exerted a deleterious influence on the men. Jungle fighting seems to impose similar demands as would desert and mountain operations.

3. Weather: S.L.A. Marshall commented on the effect of weather on the fighting troops. Excessive rain and clouds do exert psychological influences as does excessive heat and sun. A common cliche is that a particular location is no where to fight a war, but usually the fighting men have no say in where they will fight. If commanders expect their men to be adaptable, they should understand that adaptibility has a price tag in terms of unit effectiveness. Weather and terrain also cause most non-battle casualties, especially illness and disease. At Schmidt the men were physically rundown before the operation began and the weather never improved enough to afford them the opportunity to recover their health. These facts should have been known to the commander, but if they were, he ignored or slighted them. So besides the effect on operations, one must consider weather as a morale factor or casualty producer.

4. Expectations of the Troops Entering Battle: Combat rarely, if ever, fits preconceived notions. Even veteran troops meet unexpected circumstances. This variable relates to what Clark termed "Imperative of Mission", but is more encompassing. Clark defined her term to mean the "degree of urgency of the mission assigned to a unit may be assumed to influence its determination to carry out the order."[54] Obviously, to continue her analogy, a unit ordered to stand to the death has a different perspective than one ordered to fight a delaying action. In short, the significance of the mission should be clear to all the men. At Schmidt this was not the case. In fact, First Army seems to have had no clear idea what to do about Schmidt. An imperative was lacking.

The men of the line companies knew that "two divisions had been shot up" in the woods before, "but this time things would be different," but little more.[55] While some might argue that this is all the men needed to know, soldiers with a thorough knowledge of the commander's plans and intentions fight better because they understand their minor role in the major operation.

The men met unexpectedly strong German resistance. The appearance of previously unidentified counter attacking German armor proved expecially demoralizing because staff officers assured the men that no German armor was available. The shock hardly inspired confidence in the command or raised morale. Instead of an important mission imperative, Schmidt took on the look of an ill-planned, ill-thought out operation with no meaningful objective.

5. The Intensity of Combat: Commanders should be aware of how their men perceive the particular combat engagement. If they insist it is the most difficult fighting of a campaign, reconstitution may be required. Veterans thought the Schmidt fighting was the hardest they endured, worse than Normandy which, for the 28th Division, had been a bloody introduction to their trade.

The intensity of the Schmidt battle was beyond the troops' expectations. German artillery fire especially punished the Americans almost incessantly. German tanks and infantry pressed home counterattacks with fanatic resolution. As a consequence, morale flagged, confidence waned, and the enemy acquired superhuman qualities. Those intangibles added to heavy casualties or sickness caused units to fall apart.

6. Loss of Key Leaders: One might expect the division commander to know his key battalion and regimental leaders, but it is impossible, or nearly so, that he would have such imtimate knowledge of leadership at the company, platoon, and squad level. As a generalization, at Schmidt from division through platoon there seems to have been a failure of leadership. This may have been because otherwise brave and competent commanders had been overworked both psychologically and physically during previous operations and could no longer function to acceptable standards. Terrain also prevented leaders from commanding. Units became so fragmented in the woods that accurate status reports were impossible to obtain. Even General Cota collapsed in the heat of battle. Signs of physical and nervous strain among battalion and regimental commanders may be symptoms of the need for reconstitution within their units. Unfortunately at the lower levels of command it is almost impossible to determine who were the real key leaders barring an exhaustive study of unit morning reports and oral interviews. Identification of such men remains a problem. After Schmidt, for example, one draft of replacements contained scores of NCOs. Veterans of Schmidt resented their presence feeling either cheated out of rightful promotions or that the newcomers could not fill the veteran's boots. Thus the lack of confidence in leadership started at the lowest level.

7. Physical Condition of the Men and Equipment: A unit's ability to reconstitute depends in great measure on the physical condition of the men. The constant tension of combat, lack of sleep, and exposure to natural elements produced a acumulative burden of fatigue. Daily basics, such as eating, seemed to require more energy and determination than the fatigued soldier possessed. This crushing fatigue appeared in the form of negligence, lax discipline, or indifference to orders and rendered units combat ineffective.

The equipment the men carried at Schmidt was in good condition, although much of it, especially small arms, was lost by the 112th Infantry. Salvage and recovery teams recovered disabled and damaged armor vehicles after the battle or when the front pushed forward a few weeks later. U.S. equipment, tanks and artillery particularly, did not measure up to the German

counterparts. U.S. infantrymen considered the bazooka worthless, a feeling confirmed when the weapon could not stop German tanks.

8. Casualties: This should be the most accurate indicator of the need for unit reconstitution. Unfortunately the lag or confusion in casualty reporting often skews the report as a yardstick to measure a unit. Deliberate falsification of casualty reporting might also occur. Still these reports probably remain the best single determinent of the need for reconstitution. One should, however, consult Clark's study for a more detailed appraisal of casualty rates on unit performance.

9. Support Expected and Received: The commander should never promise his troops more support than may be available. Dashing the troops' high expectations is one of the surest ways to destroy a unit's confidence and morale. At Schmidt the 28th Division never received the support higher headquarters promised, yet it is a tribute to the men that they continued to fight as long as they did despite broken promises. If changes in expected support develop, as they probably will, the commander should insure that the men understand why someone failed to deliver on their behalf. To ignore a lack of promised support and not communicate with the fighting men only convinces them that no one knows, no one cares, and they have been left to redeem other's mistakes with their sacrifice.

10. Isolation: The dispersion of the fighting men to offset the increased volume of small arms fire characterizes modern combat. Densely packed ranks advancing against a foe would be suicidal. But those archaic formations provided a sense of belonging to a unit that the modern soldier lacks because he certainly cannot see more than his predecessors, and in fact he sees less. An 18th Century infantryman could see his opponents, march in ranks with his comrades, deliver a volume of fire on command--in short despite the danger have a regulated and even orderly view of the battle. Tactical dispersion presents not only a command and control problem, but also an individual one. The soldier's lack of information and awarness of events swirling around him heightens his sense of isolation.

At Schmidt the battalions that broke and ran were those that had advanced the farthest and consequently became the most exposed to German counterattacks and isolation. Communications within those battalions and within their companies and platoons was done mainly by runners, electronic means having failed. The isolation prevented the commander from gaining an accurate and timely appreciation of the course of the battle. Lacking such data, he was unable to reconstitute the unit.

11. Intangibles: Morale, espirit, unit pride; unit cohesion: Motivations to fight and sustain morale in combat remain nebulous qualities, elusive to define and, in many cases, even identify. A commander has to know his troops and be sensitive to their needs in order to detect the initially subtle shifts in morale that may ultimately undermine his authority and destroy the unit.

Regeneration began for the shattered 1st and 3d battalions, 112th Infantry, even while their sister regiments continued to carry the fighting to the Germans. Company L, 3d Battalion, had withdrawn across the Kall as ordered on 8 November with a mere 11 men. After their withdrawal the survivors received pup tents for shelter. This marked the first time in six days they had not slept in the open.[56] The men also received three hot meals a day. The division band "supplied music for consolation," and, for the first few days, the division left the men to themselves to sort out their experience at Schmidt. Then, gradually, personnel replacements joined the survivors. By 13 November, 140 replacements were present for duty. It was, in effect, a brand new line company, whose members formed their expectations of battle from listening to the few survivors of the original company talk about Schmidt.

On 8 November, the division assembled the survivors of Company K, 3d Battalion, in the divisional kitchen area, three miles southeast of Roetgen. Two officers and 31 men were present, leaving about 110 men as unaccounted. A few stragglers from the unit drifted in the next few days suffering from exhaustion, exposure, or frostbite. All the men received first aid and issues of new clothing. Fifty-six replacements reported to the company on 8 November, but the next day the division transferred those replacements to the 2d Battalion, 112th.

Left to themselves, several men built a log cabin capable of sleeping twenty. The American Red Cross supplied beer for a party, and division cooks served the men's favorite breakfasts. On 10 November General Cota visited the men and that afternoon addressed them. In a time honored fashion he praised their efforts at Schmidt and told them that he was proud to have them in his command. Later the division band gave a concert and the ARC supplied coffee and doughnuts. Forty more replacements arrived.

On 11 November the division erected a pyramidal tent for use as a recreation hall, writing room, and mail tent. Not until 12 November did reorganization begin. The 1st Platoon was reorganized with replacements. Generally the men relaxed and received hot meals. That evening 90 more replacements arrived bringing the strength of the company up to 187 men. The next day 2d, 3d, and 4th platoons underwent reorganization. Then the battalion ordnance sergeant distributed new automatic rifles, pistols, machine guns, and bazookas to the company. These weapons came from ordnance dumps for most the battalion's weapons lay abandoned in German held territory west of the Kall.

To reinvigorate a military unit's mentality, the kitchen started serving the men in rotation by platoons. This would be the regimen they would follow in combat. The company commander reasserted military order and discipline when he reestablished platoon areas and subdivided these into

squads. The basic celleur components of the fighting company were now reconstituted. Physical and psychological needs were also addressed.

The men improved their living quarters, safely out of range of the German guns. They also turned in requisitions to cover unit or individual shortages of supplies. The division scheduled the company for showers on 14 November, but a movement order forced cancellation. The men did receive arctic overshoes that day. The entire division moved to the Luxembourg-German border. This relatively inactive sector of the western front had previously been used for orientation of new divisions and recuperation of old. Once at their new sector of the front, division issued passes for Paris to veterans. Field kitchens served hot meals daily and twenty men per company per day went to division rear for showers. Church services helped to heal the wounds of Schmidt, as did passes to the newly established division rest center.

During reconstitution the division remained on the front line, although in a quiet sector. The men received training behind their lines as they rotated platoons on line following the formula of two platoons forward, one back. In early December platoons conducted assault training, learned patrolling techniques, and gradually became acclimated to life in a combat theater's front line.

The 110th Infantry patrolled the sector to keep the enemy east of the Our River. They continued training and rehabilitation until the end of November. On 24 November the regiment received a new commander. In early December the unit moved closer to the river in order to conduct a battalion-size raid across the river to seize German prisoners. The men regarded the raid as a success, and it was a means of restoring the veteran's confidence in their fighting abilities and introducing the replacements to offensive combat operations.

In a similar manner, the 112th Infantry organized assault groups to destroy three German pillboxes. A platoon from each battalion formed one assault team and on 2 December attacked. One platoon could not find its objective; another destroyed its; and the third slightly damaged the German fortification. The purpose was to restore confidence, not to destroy Germans. The regiment continued extensive training from 15 November to 15 December. During that time, replacement officers brought the unit's authorized officer complement up to strength.

The 28th Infantry Division still was being reconstituted when the major German counteroffensive--the campaign known as the Battle of the Bulge--hit the division head-on. It speaks to the success of the reconstitution measures that the division, shattered and combat ineffective a month earlier, fought a determined defensive action despite being outnumbered, outgunned, and surprised by the German thrust.

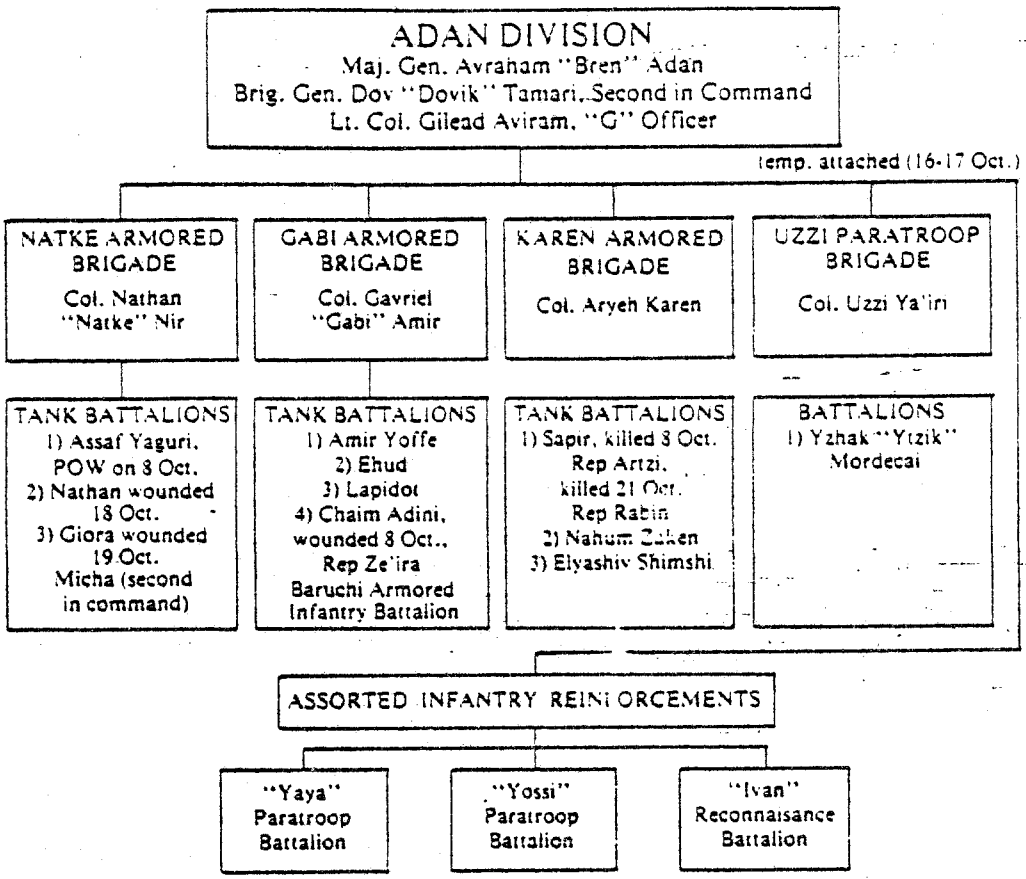
1973 Mideast War-The Reconstitution Process in the Israeli Army

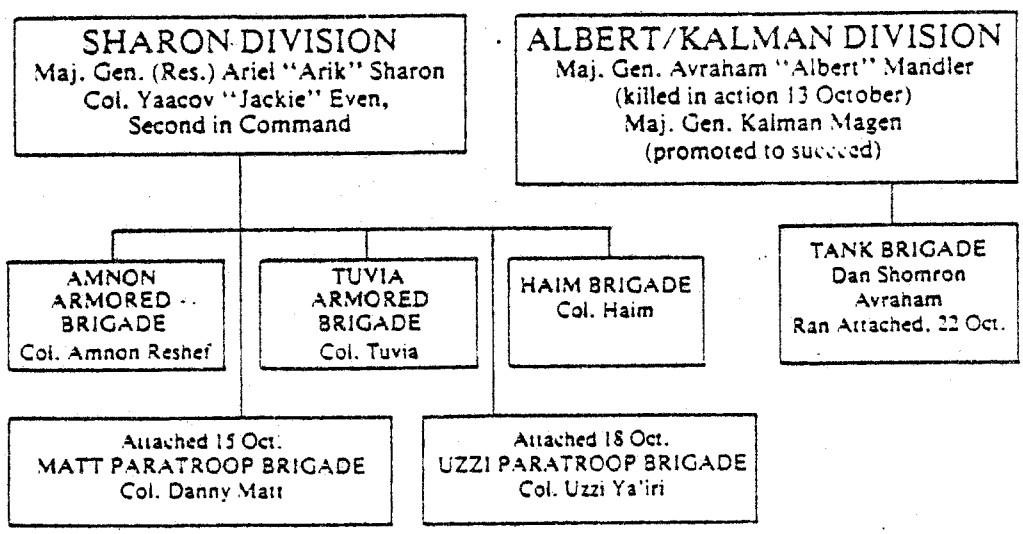
The Israeli Army consists of three elements; a small professional cadre of officers and NCO specialists; a large number of conscripts; and a trained civilian reserve expected to mobilize with 72 hours of notification.[1] In October 1973, there were 11,500 regular army officers and men; about 50,000 conscripts in various stages of training; and 275,000 army reservists, although about 35 percent of these reservists were women who were used for non-combat duties.[2] Israeli reservists, however, joined their own operational units upon mobilization instead of forming a manpower pool from which the standing army drew reinforcements. Some units were manned entirely by reservists while others were manned by reservists and regulars.[3] This section will examine unit reconstitution procedures in Israeli armored divisions during the 1973 Arab-Israeli War.

Israeli armored divisions had three armored brigades of three armored battalions each, a headquarters company per battalion, plus organic artillery and service units for supply and maintenance. The divisional trains were a support element of the division and provided logistical support to all organic and attached divisional troop units. Their functions encompassed supply, repair, ancillary transportation, medical services, and the evacuation of personnel and equipment.[4] According to one authority, the Israelis had three armored brigades available in the Sinai, about 280 tanks and 50 self-propelled guns.[5]

Logistics support employed a "push" system adopted from the U.S. Army's system. That means that instead of combat units asking for resupply, arranging a meeting point, and waiting until the supply convoys arrive, the various classes of supply are continually sent forward along the unit's axis of advance. Combat units therefore do not have to wait for resupply requests to be filled which would retard their rate of advance.[6] Area command depots stocked divisional logistic units. The divisional units, in turn, formed convoys to "push" resupply forward to brigades. Brigades then formed still smaller convoys to carry resupply to combat units.[7]

The success of Israeli arms in the 1967 War extended Israeli borders to the banks of the Suez Canal. While the Sinai Pennisula might serve as a military buffer against a future Egyptian attack, its possession also meant that the Israelis had to extend and reorganize their logistic services to operate over lengthy lines of communication. They also had to increase stockpiles to support forces in the field. The Israelis accomplished this task, but their underlying assumptions about the next war were that it would be of short duration and not involve intense fighting.[8] Consequently when heavy fighting necessitated large numbers of replacement vehicles and spare parts, these items for tanks and vehicles at mobilization parks were not


ADAN DIVISION
Maj. Gen. Avraham "Bren" Adan
Brig. Gen. Dov "Dovik" Tamari, Second in Command
Lt. Col. Gilead Aviram, "G" Officer
temp. attached (16-17 Oct.)
NATKE ARMORED BRIGADE
Col. Nathan "Natke" Nir
GABI ARMORED BRIGADE
Col. Gavriel "Gabi" Amir
KAREN ARMORED BRIGADE
Col. Aryeh Karen
UZZI PARATROOP BRIGADE
Col. Uzzi Ya'iri
TANK BATTALIONS
1) Assaf Yaguri, POW on 8 Oct.
2) Nathan wounded 18 Oct.
3) Giora wounded 19 Oct.
Micha (second in command)
TANK BATTALIONS
1) Amir Yoffe
2) Ehud
3) Lapidot
4) Chaim Adini, wounded 8 Oct., Rep Ze'ira
Baruchi Armored Infantry Battalion
TANK BATTALIONS
1) Sapir, killed 8 Oct. Rep Artzi, killed 21 Oct. Rep Rabin
2) Nahum Zaken
3) Elyashiv Shimshi
BATTALIONS
1) Yzhak "Yizik" Mordecai
ASSORTED INFANTRY REINFORCEMENTS
"Yaya" Paratroop Battalion
"Yossi" Paratroop Battalion
"Ivan" Reconnaisance Battalion


SHARON DIVISION
Maj. Gen. (Res.) Ariel "Arik" Sharon
Col. Yaacov "Jackie" Even, Second in Command
ALBERT/KALMAN DIVISION
Maj. Gen. Avraham "Albert" Mandler
(killed in action 13 October)
Maj. Gen. Kalman Magen
(promoted to succeed)
AMNON ARMORED BRIGADE
Col. Amnon Reshef
TUVIA ARMORED BRIGADE
Col. Tuvia
HAIM BRIGADE
Col. Haim
TANK BRIGADE
Dan Shomron
Avraham
Ran Attached, 22 Oct.
Attached 15 Oct.
MATT PARATROOP BRIGADE
Col. Danny Matt
Attached 18 Oct.
UZZI PARATROOP BRIGADE
Col. Uzzi Ya'iri

fully ready and many weapons were still in the preservative greases. Fuel and ammunition supplies were low as was the supply of spare parts. Coupled with the distance to the Sinai front, these deficiencies complicated initial Israeli reconstitution of units fighting against the Egyptains.

The war began at 1400 on 6 October 1973, when Egyptain and Syrian forces attacked the Israelis on two fronts. On the Sinai Front, initial Egyptian attacks either overran or isolated Israeli strongpoints along the Suez Canal, the so-called Bar Lev Line. The Israelis reacted by counterattacking these Egyptain penetrations. Major General Avraham Adan's armored division played a major role in these operations.

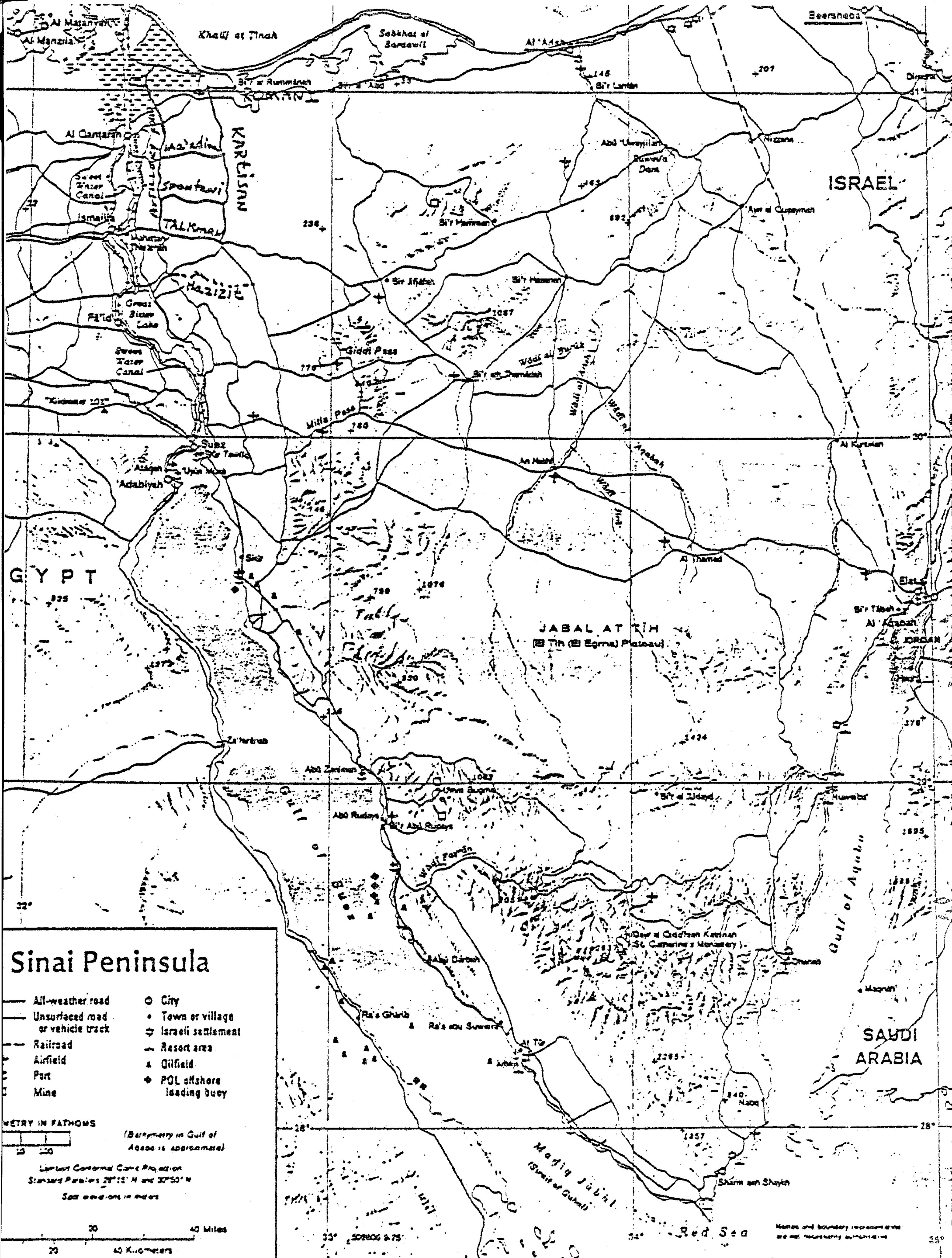
When war erupted, Adan was forming his armored division. One armored brigade had already deployed to the Sinai on 5 October, and two reserve brigades began to move to the Sinai at 2200 on 6 October, twelve hours after mobilization.[9]

The Egyptians repulsed the initial Israeli armored counterattacks and inflicted heavy casualties. By 0400 on 7 October, Southern Command, which controlled the Israeli units operating in the Sinai, could count only 110 operational tanks. This meant as many as 170 tanks were unoperational or mechanical losses. These setbacks were doubly discouraging to Israeli morale because in previous wars the Israelis, with relatively few casualties, had quickly vanquished their forces.

A major reason for the heavy tank losses was that unsupported Israeli armored units had attacked prepared Egyptain positions. In Adan's division, one armored battalion virtually ceased to exist after losing 19 to 21 tanks. An armored brigade counted 17 tanks from 44 assigned.* Nevertheless, according to Israeli doctrine units could never be redistributed. No matter how badly hit, units had to continue to function and fight. Survivors of mauled units had to maintain operational responsibility. Adan therefore assigned the survivors of the hardest hit tank battalion the task of recovering tanks and personnel casualties. He also reduced their sector of responsibility, moved them a little to the rear, but kept them on alert.

The commander of this battered armored battalion split his 30 survivors into three sub-units to evacuate wounded; to remove weapons and communications equipment from disabled tanks, and to secure the area. By noon on 9 October they had accomplished these tasks and the commander moved a further 30 kilometers east (to the rear) where he obtained fuel and ammunition. He also reassembled his force and regenerated it by reorganizing his unit with sub-units that had been stationed near the canal

*One battalion from the brigade had been diverted elsewhere which accounts, in part, for the initial low figure of 44 tanks.


Sinai Peninsula
All-weather road
Unsurfaced road or vehicle track
Railroad
Airfield
Port
Mine
City
Town or village
Israeli settlement
Resort area
Oilfield
POL offshore loading buoy
(Bathymetry in Gulf of Aqaba is approximate)
Lambert Conformal Conic Projection
Spot elevations in meters
20
40 Miles
40 Kilometers
Names and boundary representation are not necessarily authoritative
ISRAEL
SAUDI ARABIA
JORDAN
GYPT
JABAL AT TIH
Gulf of Aqaba
Red Sea
Beersheba
Suez
Ismailia
Al Qantarah
Great Bitter Lake
Sweet Water Canal
Giddi Pass
Mitla Pass
An Nakhl
Al Thamad
Elat
Al 'Aqabah
Abu Zanimah
Abu Rudays
Wadi Fayran
At Tur
Ra's Gharib
Sharm ash Shaykh
Nabq
Dahab
Ath Thamad
Sudr
Khalij at Tinah
Al 'Arish
Bi'r Lahfan
Bi'r al Hasanah
Bi'r Jifjafah
Nizzana
Al Kuntillah
Sabkhat al Bardawil
Al Manzilah
Madiq Jubal
(Strait of Gubal)
Kilometer 101
Dayr al Qaddisah Katrinah (St. Catherine's Monastery)

during the early fighting. Although he had lost 13 tanks to enemy action, 6 to mechanical failure, and suffered 10 killed and 18 wounded, by evening of 9 October he had reassembled a force of 18 Centurion and 7 Patton tanks.

The brigade's remaining vehicles and crew members reorganized at the Ma'adim-Haziait road junction where they refueled and took on ammunition. The brigade commander collected the surviving crew members from abandoned tanks, helped them gather some equipment, spoke personally to them to boost their morale, and then sent them further to the rear to serve as reinforcements when more tanks were repaired and capable of re-entering the fight.

Two circumstances allowed the Israeli's to regenerate their hard hit armored brigades. First, the Egyptians did not press their advance, being content to secure the various canal crossing points. Second, the Israeli's controlled the air above the battlefield which permitted their long, slow, congested supply convoys and personnel replacements to move forward without significant interference from hostile air interdiction.

In fighting on 8 October, the Israeli's lost about 70 tanks, including 40 severely damaged with 25 left behind in enemy controlled territory. From that evening, Israeli reconstitution procedures followed a general pattern of disengagement at evening and replenishment and regeneration during the night. After the bitter fighting of 8 October, Adan estimated that Egyptian night attacks were most unlikely because the enemy also needed time to reorganize. A reserve reconnaissance unit provided a security patrol and screen along Adan's south flank, the Hazizit Road, while farther north his three armored brigades withdrew about five kilometers along the three lateral roads paralleling Hazizit Road. Along those lateral roads the brigades met the divisional trains which had positioned themselves at pre-selected night bivouacs to await the brigades. Some tanks had been repaired by their crews, and others were towed from the battle zone. Helicopters or vehicles evacuated personnel casualties. Division and brigade headquarters' logistics officers and the division supporting logistic units not only had to plan and coordinate the flow of supplies, but also had to lead supply columns under fire and exhibit what Adan termed "follow-me" leadership.

Reconstitution usually began around 1745, shortly before dusk, when units disengaged. The location of the night bivouacs depended on the operational situation, but normally they were ready to accept the brigades by 2200 or 2300 hours. Maintenance crews would replenish and repair tanks. Commanders reassigned manpower, reorganized units and sub-units, assigned new commanders to replace casualties. Staff planners incorporated lessons drawn from the day's fighting into planning the next day's battle.

The difficult and protracted fighting exacted a physical toll on the men. Fatigue manifested itself in negligence and lax night discipline in the bivouac areas. Adan "acted vigorously" to reimpose night discipline

because he regarded any letdown in standards as a warning symptom of combat exhaustion. Exhaustion did cause a slackening of standards after four days of fighting, but the only "solution" was to speed up the stocking process so crews might catch a few hours rest.

Furthermore, by the fourth day of fighting, Adan realized that the men needed a general picture of the overall military situation that transcended their own immediate battle zone. He instituted nightly broadcasts over the division radio nets in the form of a news bulletin in order to tell his soldiers what was happening on other fronts. By 10 October the division established a "checkpoint" or straggler line on the Spontani Road. This "checkpoint," located 2-3 miles behind the front, served as a supply point for fuel and ammunition, a forward medical element, and a point for ordnance men to repair tanks. There Israeli officers halted withdrawing tanks, and inspected them to determine their problem. If necessary they evacuated wounded, and, if possible, combined crews from two damaged tanks, put them in a repaired tank, gave them a "pep" talk, and sent them back to battle. Maintenance crews repaired malfunctioning tanks on the spot. If not possible, the crews were given another tanks so that they could get back to the battle. Israeli ordnance units' retrieval and repair of battle-damaged tanks by was an important source of the Israeli reconstitution and buildup of tanks prior to crossing their Suez Canal.

Ordnance teams attached to the battalions did spot repairs, and first and second echelon maintenance near Artillery Road. Fifteen kilometers to their rear, on Ma'adem and Spontain roads, forward companies of divisional ordnance units were deployed for third echelon repairs. Further to the rear, around Romani, the base company did fourth echelon repair. Ordnance teams also patrolled roads, much like the U.S. Army in northwestern Europe in World War II, to locate and extricate tanks, repair them, and push them to the front. The Israelis' used inoperative tanks, say those with turret malfunctions, to tow tanks stuck in heavy sand dunes. Nearly every Israeli tank was hit during the war, but ordnance crews repaired most during the course of the fighting. Ultimately the IDF wrote off about 400 tanks and 25 artillery pieces as totally lost.

Reconstitution continued, especially during lulls from 12 October through 14 October and as a flow of reinforcements augmented the process. The evening before the canal crossing, Adan also addressed all his brigades to explain the Israeli Army's plan and why it was vital that each soldier do his utmost.

Personnel casualties exerted a conservative effect on Israeli operations. The Israelis lost 2,222 killed on both fronts, 5,596 wounded, and 301 prisoners. These severe losses affected morale. Commanders considered and reconsidered tactics in terms of how many casualties would result. "Charge ahead carefully" became the watchword.

With the cease fire on 25 October, Adan faced another problem. Unsure of whether or not the cease fire would hold, he had to train new tank teams to replace the heavy losses among tankers, roughly half the Israeli casualties being suffered in the armored corps. To insure security, he assigned each veteran tank crew a new crew which they would train on the spot. Thus his division could maintain a high level of alert while the training of replacement crews continued apace.

One important "Lesson" from the 1973 Israeli experience is the need to keep troops informed of events beyond their own limited perspective. From Petain in World War I through Ridgway in Korea to Adan on the Suez, successful commanders understood that they must provide their troops the "big picture" and the role of the troops in it. If the soldier believes he is part of a greater, successful operation, he may continue to fight despite suffering and hardship. The Israelis also made use of the time available to them to refit and replenish units. They had an efficient system for the recovery of damaged equipment and were able to repair and field again damaged vehicles and tanks. They had efficient (or pre-planned) reassembly areas where combat units could be replenished.

Adan's criteria for reconstitution of his fighting units appear to have been losses of equipment and personnel casualties, consumption of supplies, especially ammunition and fuel, and his ability to recognize symptoms of fatigue among his men. The most evident symptom of fatigue was the soldier's negligence or carelessness.

U.S. Army Vietnam-Unit Reconstitution

In Vietnam the U.S. Army continued its policy of replacing individuals not units. Due to the nature of the fighting and enemy tactics--few set piece, sustained battles--units requiring reconstitution could be moved to relatively safer areas without excessive security problems. Division base areas or base camps served as the center of the personnel reconstitution effort. After arrival in country individuals reported to their respective units. At division or independent base areas, individual replacements received combat training of varying duration depending on the unit involved. After this training, the division sent individuals to battalions which in turn passed them to companies for integration into platoons and squads.

Overall division and even battalion strength was quite high, but personnel shortages were concentrated in the rifle companies, a phenomenon reminiscent of U.S. Army line companies during World War II.[10] After the Tet Offensive of 1968 the number of replacements available to units dropped due the overall losses throughout Vietnam. Many rifle companies had a "paddy strength" (actual number of riflemen present for duty on the battlefield) 20 to 30 percent below that authorized, even though Army policy called for divisions to be kept at 102 percent strength. The 9th Infantry Division's, "paddy strength" figures were:

Authorized Rifle Company	164		
Assigned	157	4%	replacements not properly assigned.
Present for Duty	141	10%	diversions to higher headquarters or leave, TDY.
Paddy strength	120	15%	sick call, physical profiles, guard duty, diversions to cover unit overheads.

Furthermore the Army's 12 month tour-of-duty policy created a problem for any replacement program. Rotation boosted morale, but it also weakened units that had to send experienced men home. During the initial Vietnam build-up, the U.S. Army tapped Strategic Army Forces to meet Vietnam personnel requirements.

U.S. Army logistic channels in Vietnam underwent several changes during the war. In September 1965 the 1st Logistical Command assumed common item support for all U.S. Army Forces in South Vietnam. Originally two major base depots--Saigon and Cam Ranh Bay--supported five support commands--Vung Tau, Can Tho, Nha Trang, Qui Nhon, and Da Nang. Base depots had a 45 day stockage and support commands 15 days. By late 1967 the 1st Logistical Command controlled U.S. Army Procurement Agency, Vietnam and operated four area support commands--Saigon (Long Binh) III and IV Corps, Cam Rhan Bay Southern II Corps, Qui Nhon Northern II Corps, and Da Nang I Corps. Support commands drew their supplies from the Zone of Interior and distributed the supplies to divisions or to non-divisional units.[11]

Normally the support command would convoy supplies by truck to the division base camp. There the division would use organic assets to distribute the supplies with the division's area of operations. Assets might include trucks, helicopters, or jeeps. Logistical Support Activity provided resupply for non-divisional elements. These were normally provisional activities located in a fixed base camp to provide direct and general supply, maintenance, and service support to non-divisional elements lacking their own organic logistical support.

Forward Support Activities (FSA) were also provisional, but deployed in the vicinity of a base to provide direct supply, maintenance, and service support. Often the FSA's assets came from divisional trains of the supported unit. After the operation, the FSA withdrew from the area and its assets and personnel returned to their parent units.

The U.S. Army's experience in Vietnam probably does not readily lend itself to current reconstitution questions, with the possible exception of the Tet 1968 offensive. Otherwise enemy tactics were characterized by hit-and-run actions and a refusal to stand and fight except on prepared ground of their choosing. Even in engagements where the North Vietnamese fought, contact was broken after two or three days leaving each side more or less free to reconstitute itself in a relatively secure area--either a division base camp or a sanctuary across a neutral border.

U.S. Army reconstitution procedures at the small-unit level in Vietnam varied according to the time a unit deployed or the operational situation as the following examples illustrate. A rifle company from the 1st Cavalry Division operating in the Binh Dinh highlands in February 1966 had about 125 officers and men (of the 140 authorized) in the field. The company met strong resistance from North Vietnamese regulars and lost about 60 men in a single day's fighting. One platoon counted only three men, the platoon leader, the radio operator, and one rifleman. Nevertheless this company continued to operate for the next two days.

Both sides broke contact at night at which time the Americans carried their wounded and most of the dead, whom they could reach safely, to a central location within the company perimeter. The company commander redistributed the three survivors from the mauled platoon into another rifle platoon which had also suffered casualties. The surviving platoon leader took command of the reorganized unit.

The next morning helicopters brought ammunition and other resupply items and evacuated the wounded and dead. The company policed the battlefield for other American dead, searched for North Vietnamese stragglers, and fought North Vietnamese rearguard elements. They collected abandoned equipment and carried it to an open area to load on helicopters for transport back to the unit's base.

Helicopters also airlifted the survivors of the company back to their base at An Khe where replacements reported to the unit for the next week. Field units normally sent a status report to the battalion and the battalion used these reports as the basis of personnel requisitions. The 1st Sergeant divided the replacements in the company rear and had already assigned them to the platoons when they returned to the base.

A second instance involving the same company occurred in May 1966 when North Vietnamese regulars overran a 22 man mortar platoon.[12] Sixteen Americans were killed and six wounded in the attack. The remainder of the company, who had not been involved in the fighting, deployed that night for a company-size ambush mission, naturally, without a mortar platoon.

The next day a new mortar platoon joined the company in the field. The Battalion S-1 at An Khe assembled soldiers with a mortar MOS (11C) from among division replacements, convalescents, and returning wounded, and formed them into a platoon commanded by the former platoon sergeant (who had been hospitalized and not on the original mission) and sent the regenerated platoon back to combat.

Another officer in a separate infantry brigade served as a rifle company commander and, later, as a battalion S-4 in 1967-68. Personnel replacements for his rifle company in the field did not present a problem because combat operations did not produce "surge" casualties. The highest losses suffered might total ten men in a single day. The company commander informed the battalion S-3 of the losses. Normally battalion already knew about the losses because of monitering command radio nets and being involved in the evacuation process. This was because the company's access to battalion forward was by means of the battalion command radio net.

The company's rear was co-located with battalion rear and its Executive Officer would contact the company First Sergeant in the field, usually during resupply of the unit. At that time the First Sergeant would provide exact details of the casualty to the Executive Officer who, in turn, would send requisition for replacements to the battalion S-1. When replacements arrived at the battalion, officers apportioned them to the company most in need of replacements. The battalion staff also identified NCOs and officers entering the battalion replacement system for key positions.

A rifle company normally operated at strengths between 105-115 men in the field. Battalion policy was that no more than 7-10 men could be in the company rear at the same time. This included the executive officer, supply personnel, clerks, and so on. Because of the mass rotation policies, at one time company strength fell to 58 men.[1] The company requested replacements for the rotated men and many were transferred to the unit from the 101st Airborne Division (the unit was OPCON to the 101st). While awaiting these replacements, the seperate brigade held the same area of operations, but did not actively pursue offensive operations.

Battalion rotated rifle companies to a forward fire base to provide security and receive replacements and new equipment. This practice was similiar to battalion reliefs in World War I and II. Sometimes replacements would just be dropped off to the company in the field. The new personnel did mostly in-country orientation and tried to survive until they became experienced. This practice was also similar to the U.S. Army personnel replacement procedures in World War II.

Due to the nature of the fighting, the brigade lost few major items of equipment. Losses were usually taken care of by dropping the item from the property book as a combat loss or by doing a report of survey on the individual responsible for the item of equipment. In the case of personnel casualties, the unit kept their weapons and equipment when the casualty was evacuated. If the company was to be in the field for extended periods, or if conditions warranted, they would evacuate casualties' equipment, including weapons, on the medical evacuation helicopters. The company executive officer at battalion rear would go to the evacuation hospital and reclaim the equipment. Despite command directives to keep the equipment in the field, the company normally evacuated it in order to avoid carrying the additional weight.

Resupply reached units in the field an average of every three days or, if necessary, daily. Helicopters carried most resupply and included food, ammunition, special items like clothing, boots, maps, and personal items (mail and packages). Helicopters flew hot meals out for the evening meal as often as possible.

Unit laundry was done weekly. A resupply helicopter tossed out several bags of fatigues and everyone helped himself to the clean uniforms. The men collected the dirty uniforms and recalled the helicopters to pick up the laundry. The battalion S-4 consolidated the laundry by company and sent it for cleaning.

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[1]The brigade originally had deployed to Vietnam for 6 months TDY. The brigade was taken off TDY status and placed in a permanent in-country status. Soldiers were offered the choice of returning to the U.S. or remaining in Vietnam. Most officers and NCOs stayed; most E-5s and below went home.

All personnel carried a basic load of small arms ammunition (14 magazines loaded and 14 additional boxes of M16 ammunition). As in previous wars, machine gunners, assistant gunners, and designated riflemen carried a basic load of machine gun ammunition that varied with the operation. Emergency resupply of Class V (ammunition) was accomplished by predetermined (based on S-4 estimates) loads of a cross-section of required rifle company ammunition. This was positioned on the helicopter resupply pad at battalion rear. The company commander would notify the battalion S-3 forward who, in turn, would notify battalion rear S-4. A backup admin-log net was available, but usually forward companies could not transmit to the battalion rear. Also the battalion rear rarely monitored the net, but had responsibility to pass the information to the helicopter crews. Class V supplies were drawn from the battalion Class V point which was co-located with battalion rear. Other classes of supply came from the brigades' organic battalion support command. There was also a great deal of "scrounging" to obtain items in otherwise short supply.

Summary:

Personnel: The analysis of the selected historical examples in this report suggests certain patterns in American Army behavior concerning unit reconstitution in wartime. The American practice in both world wars and Vietnam has been based on the premise that men and machines are interchangable and can be replaced as individual spare parts without affecting the overall performance of a vast war machine. Even with the wartime experience of Allies readily available, the US Army in both conflicts consistently underestimated both the numbers and types of combat personnel replacements required to reconstitute combat units. Replacement crisises in both wars resulted and, had either conflict dragged on a few more months, could have seriously affected combat operations. Similar experiences with replacement and individual rotation policies in Korea and Vietnam indicate no significant change in Army policy. In an attempt to equalize the burden of fighting, the Army seems to have sacrificed the consistency and stability that are the hallmarks of unit tradition, esprit, and cohesion. It is difficult to see how the infusion of masses of individuals into a complex interpersonal unit where very survival requires cooperation, confidence in other members, and teamwork can produce a quality fighting organization.

Equipment: The US Army tapped the greatest industrial base on earth during both world wars. In World War II, production seems to have been adequate, but distribution to the theaters inadequate. There were several reasons; overly conservative projection of loss rates, poor battlefield salvage and reclamation policies and because no two theaters operated their logistics system in the same manner. In short, no thought had been given to fighting a multi-theater war. Similarly in Korea and Vietnam little thought appears to had been given to fighting limited wars and supplying armies from a peacetime-oriented industrial base.

During World War II unit equipment reconstitution systems evolved as the belligerents learned the lessons from the theaters of war, especially in the case of tank recovery and repair. Ad hoc measures and improvisation were necessary because long range logistical planners had underestimated the amount of resupply combat units needed. Each belligerent began World War II with a logistics system based on the previous war's experience, but the multi-theater warfare of 1939-1945 forced changes in procedures. As in World War I, efficient and sustained resupply was possible only after the Allies had rebuilt the railroad and port infrastructure of northwest Europe. Until that time supplies accumulated in Normandy and it required enormous effort to push them forward to the fighting troops. POL and ammunition shortages reached critical proportions.

Regeneration: The techniques of regeneration display a remarkable consistency that cuts across national armies and periods of warfare. Commanders moved a badly mauled unit rearward and left to itself for a few days with only minimum military discipline and training imposed. High

ranking officers visited with and commended survivors on their successes or explained how their sacrifice resulted in great victories elsewhere. The key was to reassure the survivors that they had done their best, were still considered in good standing as a unit, and that they still had a future role to play in the ultimate victory. Only after meeting these conditions, could replacements be fed into the unit, training gradually reintroduced, and the unit shaped into a more organized military formation. Usually rest in a quiet sector or a rest zone followed, but this period could not be overlong or the troops would stagnate from inaction and lose precious combat skills. Regenerated units normally conducted low risk combat assignments designed to restore their self confidence and acclimate them again to the danger of combat. Once combat operations re-commenced, the units gradually recovered their aggressiveness as well as their confidence in the high command. At that point a unit was reconstituted and prepared for any type of operation.

Footnotes

Preface

1. U.S. Army, V Corps, "After Action Report," November 1944, p. 1.

2. See, for instance, the discussion of the value and relevance of historical data sources to operational analysis in Robert McQuie, et al., Multivariate Analysis of Combat (Planning Research Corporation; July, 1968), PRC R-1143, pp. 11-16. The authors present an accurate brief on the limitations of the historical record base available for analysis.

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2. Michael Houlihan, World War I Trench Warfare (London; Ward Lock Limited, 1975), p. 117.

3. John Ellis, Eye-deep in Hell (New York: Pantheon Books, 1976), p. 142.

4. Ibid.

5. Ibid.

6. Cited in Anthony Kellett, Combat Motivation: The Behavior of Soldiers in Battle (Boston: Kluwer-Nijhoff Publishing, 1982), p. 126.

7. U.S. Army. American Expeditionary Force, 1917-1920, Divisional History Charts (July 1920?), Tabs 1, 2, and 8.

8. Middlebrook, p. 17.

9. Ibid., p. 75.

10. G.C. Wynne, If Germany Attacks: The Battle in Depth in the West (London: Faber and Faber Ltd., 1939), pp. 173-174.

11. Ibid.

12. Ibid., p. 185.

13. Richard M. Watt, Dare Call It Treason (New York: Simon and Schuster, 1963), p. 222.

14. Houlihan, p. 158.

15. Cited in Watt, p. 229.

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17. Matthew B. Ridgway, The Korean War (New York: Doubleday and Company, 1967), Appendix 4, pp. 257-258.

18. Watt, p. 220.

19. Ibid., p. 235.

20. LTC Leonard L. Lerwill, The Personnel Replacement System in the United States Army (Washington: Department of the Army, 1954) Department of the Army Phamphlet No. 20-211, p. 207.

21. Ibid., p. 207.

22. Russell F. Weigley, History of the United States Army (New York: MacMillian Publishing Company, 1967), p. 438.

23. Lerwill, p. 203.

24. Ibid., p. 227.

25. James A. Huston, The Sinews of War: Army Logistics 1775-1953 (Washington: Office of the Chief of Military History, 1966), p. 356.

26. Ibid., pp. 357-359.

27. James A. Huston, "Toward Greater Flexibility: Rotation of Combat and Service Units," Review (November-December, 1964), p. 118.

28. Ibid., p. 119.

29. This and following paragraphs are adapted from Huston, Sinews, pp. 373-377.

30. Ibid., p. 378-379.

31. Ibid., p. 383.

32. Ibid., p. 379.

1. This information is digested from, LTC Joseph I. Coffey, "Supply and Services in the German Army," Quartermaster Review (March-April 1948), pp. 44-47 and 108-112 and LTC Joseph I. Coffey, "Supply and Services in the German Field Army," Quartermaster Review (September-October, 1948), pp. 54-58 and 125-126.

2. This information is digested from U.S. Department of the Army, Historical Study: German Tank Maintenance in World War II (Washington: Department of the Army, 1954) Department of the Army Pamphlet No. 20-202, pp. 1-44.

3. This information is digested from Colonel Michael R. Lubbock, British Army, "Replacement of Tanks and Personnel in Battle," Military Review (November 1943), pp. 50-54.

4. Martin Van Creveld, Fighting Power: German Military Performance, 1914- 1945 (C & L Associates, December 1980), p. 64.

5. W. Victor Madej, German Army Order of Battle 1939-1945, Vol. 1 (Allentown, PA: Game Marketing Company, 1981), p. 49.

6. Ibid.

7. Ibid., p. 50.

8. Van Creveld, p. 88-89

9. Ibid., p. 103.

10. Ibid., p. 122.

11. U.S. Army, Department of the Army, Replacement System World Wide World War II (Report of the Replacement Board, Department of the Army mimeo., 1947) Book 2, Section 1. p. 1. Hereafter this study, which has six separate books will be cited as RS, Book ____, Section ____.

12. RS, Book 3, Section 1, p. 1.

13. RS, Book 4, Section 1, p. 3.

14. United States Forces European Theater, Report of the General Board United States Forces European Theater--Combat Fatigue--Medical Section (Study No. 91), (1945?), pp. 1-2.

15. U.S. Army, Headquarters Army Ground Forces, Study of Army Ground Forces Casualties, HQ Army Ground Forces, Plans Section, 25 September 1946, p. 3 and RS, Book 5, Section 19, p. 2.

16. RS, Book 5, Section 23, p. 6, p. 9 and Section 19, p. 2.

17. U.S. Army, Headquarters Third U.S. Army, G-1 Section, After Action Report of the G-1 Section 1945, p. 15.

18. RS, Book 5, Section 23, p. 2.

19. Headquarters 28th Infantry Division, "Unit Report No. 4 From 010001 October to 312400 October 1944," (14 November 1944), p. 3.

20. Study AGF Casualties, p. 7.

21. Ibid., 6. The lettered companies of infantry battalions normally were below authorized strength while headquarters, service, and supporting units were overstrength. AGF concluded that there was an "apparently irresistible tendency (perhaps there is a real need) to fatten headquarters units while the front-line riflemen performs the most hazardous duty with fewer comrades than the law anticipated. Interviews with infantry combat commanders show that rifle companies seldom fight at more than two-thirds strength." Ibid. As an example, the same study cites one infantry division in Europe on 20 January 1945 whose regimental headquarters and headquarters companies averaged 145 per cent of authorized enlisted strength while the rifle companies averaged 65 percent.

22. Ibid.

23. Headquarters 28th Infantry Division, "Unit Report No, 5. From 010001 November to 312400 November 1944," (6 December 1944), passim.

24. "V Corps After Action," November 1944, p. 7.

25. Van Creveld, pp. 86-87.

26. General Board, Combat Fatigue, pp. 1-2.

27. RS, Book 5, Section 24, p. 23

28. RS, Book 1, p. 7.

29. Army PAM, 20-211, p. 453.

30. War Department, Field Manual 100-10 Field Service Regulations Administration) Washington, D.C. War Department, November, 1943), pp. 133-134.

31. Army PAM, p. 454. The corps replacement battalions theoretically stocked four companies of 1,200 replacements total, but figures as high as 7,000 or 2,500 for a two month period from mid-June to

mid-August 1944 were known. In those cases additional equipment was loaned to replacement battalions by the corps they supported. Normal requisitions for supplies went to Replacement System Headquarters for consolidation and forwarding to Headquarters, SOS. However the replacement battalions were well forward so replacements would not have far to go to their units and thus hundreds of miles from SOS supply depots. Army depots lacked transportation to make supply runs to the replacements battalions, but had to take up the supply function regardless. For example, rifles were allocated to armies in the theater, not SOS. Army, however, could only requisition rifles based on authorized strength-which did not include the flow of replacements. M-1 rifles, therefore, were not available without "cutting corners" despite the fact that Army wanted all combat troops equipped with M-1s. RS, Book 5, Section, 24, p. 25.

32. RS, Book 5, Annex 23, p. 2 Comments.

Reconstitution of Equipment

33. U.S. Army, U.S. Army Service Forces, Logistics in World War II: Final Report of The Army Service Forces, (1 July 1947), p. 158.

34. Ibid., p. 247.

35. Major T.S. Oliver, "Ordnance Recovery and Evacuation Requirements for a Field Army," CGSC, 1947, Annex 1 Appendix C.

36. Logistics in World War II, p. 161.

37. Ibid., p. 102.

38. RS, 5, Section 24, p. 19 and Army Ground Forces Board Report, "Lessons Learned in Combat, 7-8 November 1942--September 1944," Headquarters 34th Infantry Division (September 1944), p. 92.

39. Lida Mayo, U.S. Army in World War II: The Technical Services: The Ordnance Department: On Beachhead and Battlefront (Washington: Office of the Chief of Military History, 1968), p. 255.

40. Ibid., p. 269.

41. LTC Frank H. Skelly, "Mobile Maintenance and Reclamation Units," USA Command and Staff College, 22 May 1947, pp. 21-22.

42. The General Board, United States Forces, European Theater, The Employment of Ordnance Staff sections, Ordnance Combat Service Units and Ordnance Service Units in the European Campaign (Study No. 101), pp. 9-10.

43. Ruppenthal, p. 497.

44. War Department Field Manual FM 100-10 Field Service Regulations Administration (Washington, D.C.: War Department) 15 November 1943, p. 39.

45. William F. Ross and Charles F. Romanus, U.S. Army in World War II: The Technical Services: The Quartermaster Corps: Operations in the War Against Germany (Washington: Office of the Chief of Military History 1965), p. 464.

46. U.S. Army, Headquarters 2d Armored Division "G-4 History European Theater of Operations," (14 November 1945), p. 7.

47. The General Board, United States Forces, European Theater, Operation of Ordnance Roadside Service Stations (Study No. 97), pp. 1-2.

48. Mayo, pp. 270-271.

49. Ross and Romanus, pp. 471-472.

50. Board Study No. 101.

51. Huston, Sinews, pp. 533-534.

52. U.S. Army, Headquarters 2d Armored Division, "After Action Report, December 1944," and U.S. Army, Headquarters 2d Armored Division, G-4 History."

53. Roland G. Ruppenthal, United States Army in World War II: The European Theater of Operations Logistical Support of the Armies in Two Volumes: Volume II September 1944-May 1945 (Washington: Office of the Chief of Military History, 1959), p. 236.

54. Second Armored Division "G-4 History," p. 21.

55. FM 100-10, pp. 132-134.

56. U.S. Army, Headquarters First Army, Combat Operations Data First Army, Europe 1944-1945 (18 November 1946), p. 118.

57. U.S. Army, Headquarters Third Army, After Action Report, Ordnance Section, Headquarters Third Army n.d., p. 15.

58. The General Board, United States Forces, European Theater, Requirement for Ordnance Recovery Company, (Study No. 95), 4 February 1946, pp. 2-3.

59. See Skelly, Annex 5 to Appendix J, p. 66.

60. Third Army After Action Report, Ordnance Section, p. 13.

61. Skelly, p. 35.

Part IV Schmidt and the 28th Infantry Division

1. The statistics in this section are based on 28th Infantry Division's "Unit Report No. 5" covering the period November 1944 when the division fought at Schmidt. Regimental records, however, record 5,450 casualties (3660 battle and 1,790 non-battle).

2. Ibid., p. 14.

3. Charles B. MacDonald and Sidney T. Mathews, United States Army in World War II: Special Studies: Three Battles: Arnaville, Altuzzo, and Schmidt (Washington: Office of the chief of Military History, 1952), p. 413. Hereafter cited as Schmidt.

4. "Unit Report, No. 5," p. 6.

5. Dorothy Kneeland Clark, "Casualties as a Measure of the Loss of Combat Effectiveness of an Infantry Battalion," Operations Research Office, The Johns Hopkins University, Technical Memorandum ORO-T-289 (August 1954), Appendix A, p. 39.

6. "Unit Report No. 4," p. 2. MacDonald, Schmidt, p. 255, and the cumulative figures from Memorandum to G-1 Daily Summary attached to Headquarters 28th Infantry Division G-1 Journal 01 Nov 44 30 Nov 44 Germany.

7. Charles B. MacDonald, U.S. Army in World War II: European Theater of Operations: The Seigfried Line Campaign (Washington: Office of the Chief of Military History, 1963), p. 346 and Clark, p. 31.

8. Seigfried Line Campaign, pp. 390-391.

9. MacDonald, Schmidt, p. 254.

10. Headquarters, Third Battalion, 112th Infantry, "3d Battalion, 112th Infantry History," n.d. n.p. Company L account for period 3-6 November.

11. MacDonald, Schmidt, p. 255 and "Unit Report No. 5," p. 29, "The local battlefield was to be isolated by air action."

12. Charles B. MacDonald, The Battle of the Huertgen Forest (Philadelphia: J. B. Lippincott, 1963), p. 86.

13. MacDonald, Seigfried Line, p. 255.

14. Robert Ingersoll, Top Secret (New York: Harcourt, Brace, 1946), pp. 240-241. Also cited in John Ellis, The Sharp End: The Fighting Man in World War II (New York: Charles Scribner's Sons, 1980), p. 239.

15. U.S. Army First United States Army, Report of Operations 1 August 1944 22 February 1945 n.d., p. 165.

16. MacDonald, Huertgen, p. 111.

17. Cited in First U.S. Army, Report of Operations, p. 166.

18. MacDonald, Huertgen, p. 107.

19. "3d Battalion, 112th Infantry History." Company K account for 17 October 1944.

20. S.L.A. Marshall, Men Against Fire: The Problem of Battle Command in Future War (rpt. Glouster, Mass: Peter Smith, 1978), p. 113.

21. 28th Division "Unit Report No. 5," p. 28.

22. Skelley, "Mobile Maintenance," pp. 34-35.

23. "History, 3d Battalion, 112th Infantry," Summary for 5-7 November.

24. U.S. Army Service Forces, Technical Intelligence Report, "Poor Staff Leadership," dated 7 August 1945, p. 3. This is a highly critical account of the 112th Infantry staff officers and unit commanders by an American officer serving with the 86th Chemical Mortar Battalion at Schmidt. He was in Schmidt during the height of the fighting.

25. "History 3d Battalion, 112th Infantry," Company L account for 3-5 November.

26. MacDonald, Huertgen Forest, p. 104-105. Also see "Poor Staff Leadership," p. 5.

27. MacDonald, Schmidt, pp. 308-309. "3d Battalion, 112th Infantry History," Company L account for 3-6 November, Company K for 4 November.

28. MacDonald, Schmidt, p. 327.

29. MacDonald, Huertgen Forest, p. 113.

30. Ibid., pp. 113-115.

31. MacDonald, Schmidt, p. 349.

32. Ibid., p. 415.

33. U.S. Army, Headquarters 28th Infantry Division, "After Action Report" Headquarters and Headquarters Battery 28th Division Artillery 010001 Nov to 302400 Nov 1944 (4 December 1944), p. 6.

34. MacDonald, Schmidt, p. 307.

35. See Ibid., passim for details on supply and engineer activities along the Kall trail.

36. Ibid., p. 311.

37. Ibid.

38. "3d Battalion, 112th Infantry History," Company L account for 3-6 November.

39. Ibid., Headquarters Company account 4-7 November.

40. MacDonald, Schmidt, pp. 368-369.

41. Extracted from "Unit Report No. 5," pp. 7-25.

42. MacDonald, Huertgen Forest, p. 107.

43. As noted in 28th Infantry Division G-1 Journal and "Unit Report No. 5".

44. 28th Infantry Division G-1 Journal and "Unit Report No. 5," p. 12.

45. MacDonald, Schmidt, p. 413. U.S. Army, 110th Infantry Regiment, History of the 110th Infantry Regiment of the 28th Division United States Army World War II 1941-1945 (Atlanta: Albert Love Enterprises, 1945), pp. 45-46.

46. "Unit Report No. 5," p. 27.

47. Clark, "Casualties," p. 3, 25, 26, and 35.

48. MacDonald, Huertgen Forest, p. 118.

49. MacDonald, Seigfried Line, p. 369.

50. MacDonald, Schmidt, p.

51. Marshall, pp. 173-4.

52. "Unit Report No. 5," p. 6.

53. In order Clark, ORO-T-289, pp. 29-35; BDM Corporation, ed., BDM Final Report New Approaches to Reconstitution in High Intensity Conflict on the Modern Battlefield (14 March 1980); and Elizabeth W. Etheridge and Michael R. Anderson, "Criteria for Reconstitution of Forces", Studies and Analysis Directorate, Combined Arms Studies and Analysis USACACDA (September 1981).

54. Clark, p. 31.

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3. Luttwak, p. 77.

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6. Luttwak, p. 175.

7. Ibid.

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9. The following is derived from Adan's book.

Vietnam

10. Julian J. Ewell and Ira A. Hunt, Department of the Army: Vietnam Studies: Sharpening the Combat Edge: The Use of Analysis to Reinforce Military Judgement (Washington, D.C., 1974).

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Appendix

CURRENT RECONSTITUTION CONCEPT
(Definitions provided by CAORA Concept Paper dated June 1983)

DEFINITION OF TERMS. The development of the current reconstitution concept is dependent upon an understanding of several terms. These terms include the following:

a. Reconstitution-The total process of keeping the force supplied with various supply classes, services and replacement personnel and equipment to maintain the desired level of combat effectiveness.

b. Regeneration-Includes those replacement, reorganization, and redistribution actions necessary to restore attrited units that are no longer combat effective to the desired level of combat effectiveness.

c. Sustaining Support-Includes those resupply and service actions that are constantly in progress to maintain a unit at a desired level of combat effectiveness. These actions include replenishment of all classes of supply and the transportation required to accomplish resupply, essential maintenance, recovery and evacuation of nonoperational equipment, medical treatment and evacuation, individual personnel replacement, and services required to sustain the unit.

d. Replacement-The introduction of personnel and equipment assets into attrited units with the aim of raising such units to a designated strength level. The personnel and equipment assets may be introduced into the attrited unit individually, by fully manned weapon or equipment items, in other small increments, or as whole sub-units (squads, platoons, etc.).

e. Reorganization-Those organizational actions taken within an attrited unit to restore its combat effectiveness. Reorganization consists of such measures as shifting equipment and personnel between sub-units to better balance their combat capabilities, the matching of surviving weapon systems with surviving crews to enable their continued employment, the formation of composite units (joining two attrited sub-units to form a single full-strength or over-strength combat effective sub-unit), and similar internal shifting of unit resources.

f. Redistribution-When a unit has been rendered combat ineffective and when resource constraints, the operational situation or other factors preclude, or make impractical the restoration of that unit's combat effectiveness, the unit's remaining assets may be redistributed among other attrited formations. These assets may be assigned as personnel and equipment replacements or employed in other ways as specified by the higher commander. While such a unit would continue to exist "on the books," its personnel and equipment resources would be assigned to other formations.

g. Resupply-Attrited units must be sustained and resupplied through the combat service support system with emphasis put on reestablishing unit basic loads of ammunition, topping off fuel tanks and providing other critical supply items required for conducting future combat operations.

h. Services-The services functions of combat service support, as they performed by and for the Army in the field, are termed field services. They include: laundry, bath, clothing renovation, bakery, textile renovation, selvage, decontamination, graves registration, post exchange sales, provisions general labor, and provisions of water.

i. Combat Effectiveness-The unit's ability to carry out a given mission is termed "combat effectiveness". There are many factors that contribute to a unit's capability to carry out combat operations. These include such identifiable elements as weapons strength and technical specification, (lethality, range, accuracy, etc.), personnel strength, logistic resources and assets (transport and maintenance capabilities, supply item availability, and the system capabilities of other equipment on hand in the unit. There are unquantifiable factors which include unit training, leadership, morale, motivation and the debilitating influence heavy attrition and battlefield stress may have on combat effectiveness.

Army Service Forces--one of the three major subdivisions of the Army; it provides general administration, transportation, supply, evacuation, and other services to meet the requirements of the Army. In World War I it was known as Services of Supply.

class I supplies, --supplies, such as rations and forage, that are consumed at an approximately uniform daily rate under all conditions, and that are issued automatically without requisitions to Army Units. Abbrev: Cl I Sup.

class II supplies, --supplies, such as clothing weapons, and vehicles, for which allowances are fixed by Tables of Allowances and Tables of Basic Allowances.

class III supplies, --supplies, such as fuels and lubricants for all purposes except aviation, including gasoline for all vehicles, Diesel oil, fuel oil, and coal.

class III (A) supplies, --aviation fuels and lubricants.

class IV supplies, --supplies and equipment for which allowances are not prescribed, or which require special measures of control and are not otherwise classified. Normally such supplies include fortification materials, construction materials, aircraft, and articles of similar nature.

class IV (E) supplies, --complete airplanes, airplane equipment, and all spare parts and supplies required to maintain a complete airplane in commission.

class V supplies, --ammunition, pyrotechnics, antitank mines, and chemical warfare agents.

1st echelon maintenance --servicing or repairs that can be done by an operator, driver, or crew.

2nd echelon maintenance --service or maintenance that is beyond the scope of the operating personnel, but which can be done by the maintenance section of the unit that uses the equipment.

3rd echelon maintenance --maintenance, repairs, and unit replacement beyond the scope of the troops using the material and equipment, which can be performed by mobile maintenance organizations.

4th echelon maintenance--general overhaul and reclamation of equipment, units, and parts, involving the use of heavy tools and the services of general and technical mechanics.

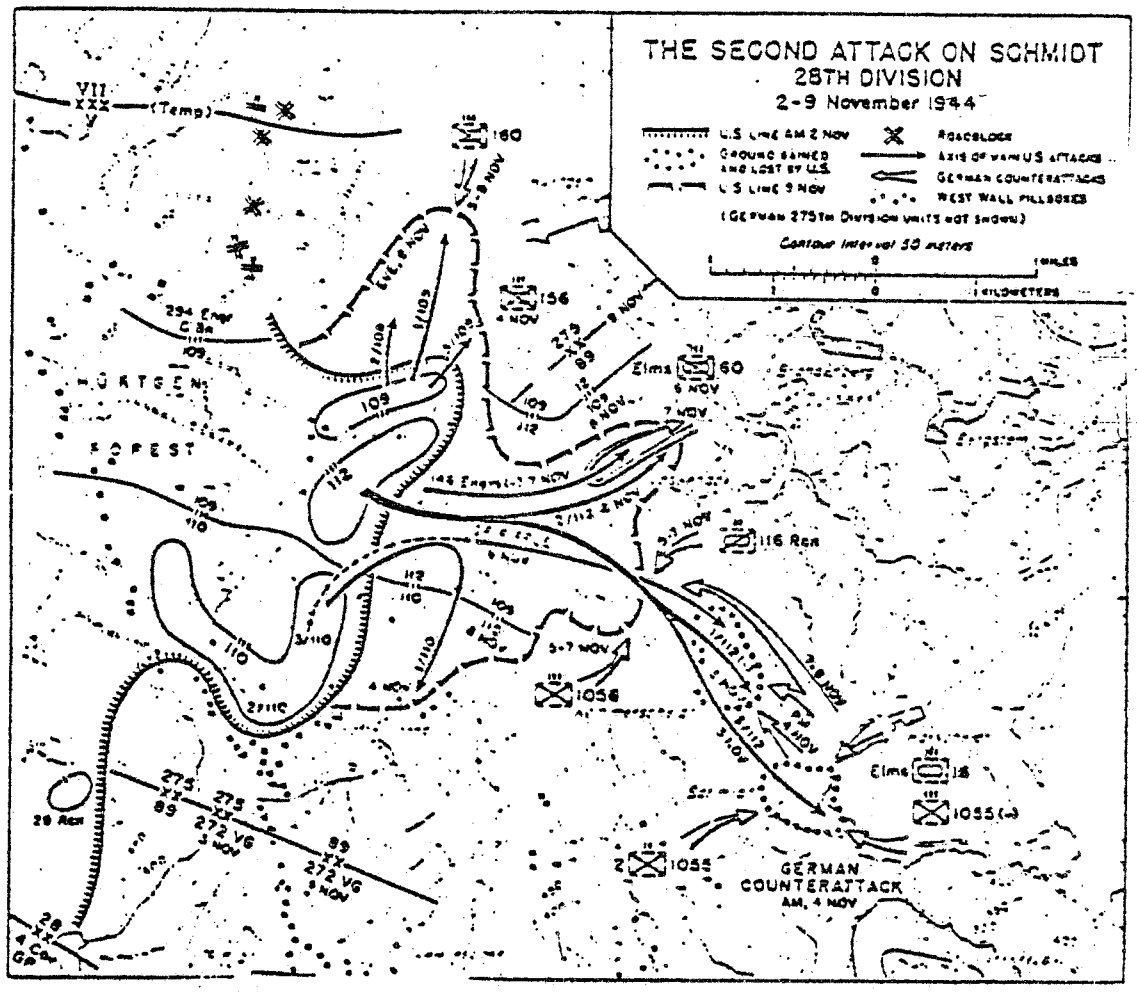
5th echelon maintenance--maintenance of equipment by personnel of maintenance and supply units located at fixed installations in the rear areas. This included the reclamation or complete reconditioning of materiel, the limited manufacture of parts and equipment, and the supplying of equipment to lower echelons.

regulating station--a traffic control agency located on a line of communication near the rear of the combat zone to maintain quick, smooth, regular movement of troops and materiel to and from parts of the area controlled.

services of supply--see army service forces.

theater of operations--combat area, including the area necessary for the administration and supply connected with military operations.

zone of interior--that part of national territory in a theater of war not included in the theater of operations. The zone of the interior is organized to furnish manpower and munitions to the armed forces.


THE SECOND ATTACK ON SCHMIDT
28TH DIVISION
2-9 November 1944
U.S. LINE AM 2 NOV
GROUND GAINED AND LOST BY U.S.
U.S. LINE 9 NOV
ROADBLOCK
AXIS OF MAIN U.S. ATTACKS
GERMAN COUNTERATTACKS
WEST WALL PILLBOXES
(German 275th Division units not shown)
Contour interval 50 meters
MILES
KILOMETERS
VII
XXX
V
(Temp)
160
156
Elms
60
HÜRTGEN
FOREST
116 Regt
1056
Elms
18
1055(-)
1055
GERMAN
COUNTERATTACK
AM, 4 NOV
28 Regt

477249